

WHAT IS CLAIMED IS:

1. A process for etching an anode foil, comprising:
  - (a) placing an unetched anode foil in a first high temperature etch electrolyte solution;
  - (b) initially etching said anode foil;
  - (c) placing a mask with a grid of openings over the etched anode foil exposing portions of the foil surface;
  - (d) placing the masked anode foil in a second etch electrolyte solution; and
  - (e) etching said masked anode foil, such that the exposed area of the foil is further etched.
2. A process according to claim 1, wherein said first etch electrolyte solution is based on a halide or oxyhalide and contains an oxidizer.
3. A process according to claim 2, wherein said first etch electrolyte solution is a chloride or oxychloride containing solution.
4. A process according to claim 2, wherein said oxidizer is chosen from the group consisting of peroxide, persulfate, cerium sulfate and sodium periodate.
5. A process according to claim 1, wherein said first etch electrolyte solution and said second etch electrolyte solution are the same.
6. A process according to claim 1, wherein said mask exposes 10 % to 95 % of the total area of the foil.

7. A process according to claim 6, wherein said mask exposes 30 % to 70 % of the total area of the foil.

8. A process according to claim 1, wherein said mask is configured in a pattern such that the exposed area can be re-etched without creating large scale strength defects in the foil.

9. A process according to claim 1, wherein said mask is configured in a hexagonal array pattern.

10. A process according to claim 1, wherein said mask is configured in a random array pattern.

11. A process according to claim 1, wherein said mask is configured in a radial burst array pattern.

12. A process according to claim 1, wherein said mask is configured such that the exposed area perimeter is round.

13. A process according to claim 1, wherein said mask is configured such that the exposed area perimeter is square.

14. A process according to claim 1, wherein said mask is configured such that the exposed area perimeter is hexagonal.

15. A process according to claim 1, wherein said mask is configured such that the exposed area perimeter is triangular.

16. Etched anode foil, provided by a process for etching anode foil, comprising:

- (a) placing an unetched anode foil in a first etch electrolyte solution ;
- (b) initially etching said anode foil;
- (c) placing a mask with a grid of openings over the etched anode foil exposing portions of the foil surface;
- (d) placing the masked anode foil in a second etch electrolyte solution; and
- (e) etching said masked anode foil, such that the exposed area of the foil is further etched.

17. Etched anode foil according to claim 16, wherein said first etch electrolyte solution is based on a halide or oxyhalide and contains an oxidizer.

18. Etched anode foil according to claim 17, wherein said first etch electrolyte solution is a chloride or oxychloride containing solution.

19. Etched anode foil according to claim 17, wherein said oxidizer is chosen from the group consisting of peroxide, persulfate, cerium sulfate and sodium periodate.

20. Etched anode foil according to claim 16, wherein said first etch electrolyte solution and said second etch electrolyte solution are the same.

21. Etched anode foil according to claim 16, wherein said mask exposes 10 % to 95 % of the total area of the foil.

22. Etched anode foil according to claim 21, wherein said mask exposes 30 % to 70 % of the total area of the foil.

23. Etched anode foil according to claim 16, wherein said mask is configured in a pattern such that the exposed area can be re-etched without creating large scale strength defects in the foil.

24. An electrolytic capacitor comprising anode foil, wherein said anode foil is etched by a process comprising:

- (a) placing an unetched anode foil in a first etch electrolyte solution;
- (b) initially etching said anode foil;
- (c) placing a mask with a grid of openings over the etched anode foil exposing portions of the foil surface;
- (d) placing the masked anode foil in a second etch electrolyte solution; and
- (e) etching said masked anode foil, such that the exposed area of the foil is further etched.

25. An implantable cardioverter defibrillator (ICD) comprising an electrolytic capacitor electrolytic capacitor comprising anode foil, wherein said anode foil is etched by a process comprising:

- (a) placing an unetched anode foil in a first etch electrolyte solution;
- (b) initially etching said anode foil;
- (c) placing a mask with a grid of openings over the etched anode foil exposing portions of the foil surface;
- (d) placing the masked anode foil in a second etch electrolyte solution; and
- (e) etching said masked anode foil, such that the exposed area of the foil is further etched.